

# PATENT ABSTRACTS OF JAPAN

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## (54) THREE-DIMENSIONAL STRUCTURE AND METHOD FOR MANUFACTURE THEREOF

### (57)Abstract:

PROBLEM TO BE SOLVED: To make the subject structure available suitably as a multi-layer wiring board or a stereoscopic wiring board which has a high degree of freedom in a circuit design and which consists of minute wiring, by providing parts arrayed in the periodical range of a specified value so that a photonic band is formed in a plurality of areas filled with substances.

SOLUTION: A three-dimensional structure is such that it is equipped with a porous body having three-dimensionally continuous through-holes and with plural areas formed in the porous body and filled with substances, and that the plural areas filled with the substances have parts arrayed in a period of average 0.1-2  $\mu\text{m}$  so that a photonic band is formed. The substances to be filled in the periodically arranged areas are various polymers, ceramic materials such as metal oxides and metal or the like and; they are not specified and may be liquid crystals or non-linear optical materials. The parts other than the periodically arranged areas may be left porous with voids as they are or filled with other substances such as light modulation materials like liquid crystals and laser emitting materials.

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